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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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| 08/903,453 | 07/29/97 | FORBES | L 303.378US1 |

MM21/0427
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| EXAMINER | |
|------------|--------------|
| WALLACE, V | |
| ART UNIT | PAPER NUMBER |

2815

DATE MAILED: 04/27/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

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Office Action Summary

Application No.

08/903,453

Applicant(s)

Forbes et al.

Examiner

Valencia Martin Wallace

Group Art Unit

2815



☒ Responsive to communication(s) filed on Apr 12, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-6

is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-6 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2, 9

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Election

Applicant's election without traverse of Group I, claims 1-6 in Paper No. 10 is acknowledged.

Claim Rejections - 35 USC § 112

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The use of the term "the gate" in the last line is vague and indefinite. It is not clear whether Applicants are referring to the control gate or the floating gate.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321© may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-6 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 11-18 of copending Application No. 08/902,843. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present invention and copending Application no. 08/902,843 disclose a transistor having:

- a source and a drain separated by a channel supported by a semiconductor substrate;
- a floating gate formed between the source and the drain above the channel and separated by an insulative amorphous carburized silicon layer;
- a control gate formed adjacent to and insulated from the floating gate;
- wherein the transistor is part of a memory cell comprising a capacitor.

Further, stacked capacitors are well known and widely used in memory devices.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita et al. (Japanese Application Publication No. 08-255878) in view of Yee et al. (J. Mater. Res., Vol. 11, No. 8, Aug. 1996), both submitted by Applicants.

Sugita et al. disclose a memory cell having transistors, comprising:

a source region (2);

a drain region (3);

a channel region between the source and drain regions;

a floating gate (storage) electrode (6) separated from the channel region by a silicon carbide gate dielectric layer (5); and

a control gate electrode (8) separated from the floating gate by an intergate dielectric layer (7), such that the floating gate is electrically isolated. Note Sugita et al. Figure 3.

However, Sugita et al. fail to provide the crystalline structure of the silicon carbide gate dielectric layer.

Therefore, to provide the device of Sugita et al. with an amorphous silicon carbide gate dielectric layer would have been obvious to one of ordinary skill in this art because Yee et al. teach the use of amorphous silicon carbide in semiconductor devices because of its hardness, adhesion and stress properties.

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Response to Amendment

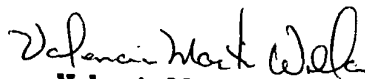
The cancellation of claims 10-19 in the amendment received February 22, 1999 and the cancellation of claims 7-9 in the amendment received April 12, 1999 are acknowledged.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Valencia Martin Wallace whose telephone number is (703) 308-4119. The examiner can normally be reached on Monday - Thursday from 8:00 a.m. to 5:00 p.m. The fax phone number for this Technology Center is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Martin Wallace
April 21, 1999


Valencia Martin Wallace
Primary Examiner
Technology Center 2810